



## FOOTBALL STADIUM FOUNDATIONS

### PROJECT

Foundations for a new state-of-the-art stadium for Burton Albion Football Club. The £6.4m Pirelli Stadium replaces the club's old Eton Park Ground and includes conference facilities, an on-site pub and shop and accommodation.

Roger Bullivant Limited (RBL) utilised the NRG Megacone Column method to provide the foundations for the four-stand stadium.

### REQUIREMENT

The ground conditions comprised a mixture of soft alluvial clays and loose sands, to depths of 3m, overlying medium dense sand and gravels. The water table was generally encountered in the sand and gravel strata, but in places was recorded in the alluvial soils.

### SOLUTION

The design philosophy for the development comprised:

- Hardrock Injection Columns and Pavement to support a ground bearing floor slab.
- Megacone Concrete Foundations beneath steelwork columns using a 2.7m long NRG cone shaped weight.
- All ground improvement materials were site-generated, with no imported fill, therefore eliminating the need for any off-site disposal.



RB Wirtgen



PIILING

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HOUSE FOUNDATIONS

FOUNDATIONS

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CONCRETE PRODUCTS

CONSERVATORY BASES

## FOUNDATION CONSTRUCTION

The Megacone Concrete Foundations were installed with repeated compaction blows to achieve a pre-determined set and were subsequently driven on until the collar of the Megacone came to rest at ground level. This procedure created a Displacement Foundation, as detailed on the photographs (right), which was filled with concrete to the specified cut-off level.



Vertical Vibrating Taper Poker

## FOUNDATION TESTING

The Foundation was statically load tested to a working load of 750kN, with maximum settlements of 12mm. The static load test was increased to 1.5 times working load at which the total settlement was less than 20mm. The testing identified that load capacities of up to 1000kN could be achieved.

## HOLDING DOWN BOLTS

Holding down bolts were post drilled into the Megacone Concrete

Foundations ready to receive the steelwork.

## HARDROCK PAVEMENT

The site-generated material is mixed with lime and cement binders to provide sub base replacement layer with a minimum CBR value in excess of 30%. Concrete and tarmac finishes were then placed directly on the HARDROCK Pavement.

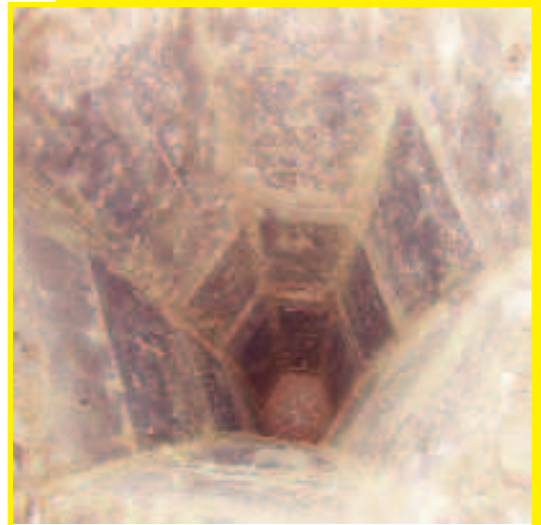


Load Testing

NRG Megacone



Displacement Foundation



Concrete Foundation

